

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number  
**WO 2005/040177 A1**

(51) International Patent Classification<sup>7</sup>: **C07F 9/09**,  
9/11, 9/12

(21) International Application Number:  
PCT/EP2004/052615

(22) International Filing Date: 21 October 2004 (21.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
03078364.1 24 October 2003 (24.10.2003) EP

(71) Applicant (for all designated States except US): **AKZO NOBEL N.V.** [NL/NL]; Velperweg 76, NL-6824 BM Arnhem (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DE KLEINE, Lambertus, A.** [NL/NL]; Harzstraat 10, NL-7559 LM Hengelo (NL). **SEIFERT, Juergen, Klaus** [DE/DE]; An den Lauchstuecken 20, 06849 Dessau (DE).

(74) Agents: **BEETZ, Tom** et al.; De Vries & Metman, Overschiestraat 180, NL-1062 XK Amsterdam (NL).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **PROCESS TO PREPARE ALKYL PHENYL PHOSPHATES**

(57) Abstract: The present invention relates to a process wherein dichloromonophenyl phosphate and monochlorodiphenyl phosphate is reacted with an aliphatic alcohol, in the presence of a Lewis acid catalyst, in the absence of solvent, at a temperature of above 60 to 200° C, and at a pressure of 0.001 to 1.1 bara, provided that the reaction mixture is sparged with an inert carrier gas if the pressure is above 0.67 bars. The present invention further relates to mixtures of monoalkyl Biphenyl phosphates and dialkyl monophenyl phosphates obtainable from this process and the use of such mixtures as a plasticiser and/or a flame retardant.



**WO 2005/040177 A1**